

CLAIMS

1. A printing apparatus, comprising:

a movable head that performs recording on a medium using ink;

5 a first sensor that can move together with said head and that detects regular reflection light from said medium; and

a second sensor that is provided separately from said first sensor, that can move together with said recording head and that detects diffuse reflection light from said medium.

10

2. A printing apparatus, comprising:

a carry unit that carries a medium in a carrying direction;

a movable head that performs recording on a medium using ink;

15 a first sensor that can move together with said head and that detects an edge of said medium; and

a second sensor that can move together with said head and that detects a pattern formed on said medium by said head;

wherein said first sensor is provided further upstream with regard to said carrying direction than said second sensor.

20

3. A printing apparatus according to claim 1,

wherein said first sensor is provided further upstream with regard to a carrying direction in which said medium is carried than said second sensor.

25

4. A printing apparatus according to claim 1,

wherein said first sensor includes a light-emitting section and a light-receiving section;

30 said second sensor includes a light-emitting section and a light-receiving section; and

a direction in which said light-emitting section and said light-receiving section of said first sensor are arranged is different from a direction in which said light-emitting section and said light-receiving section of said second sensor are arranged.

5. A printing apparatus according to claim 4,
wherein said light-emitting section and said light-receiving
section of said first sensor are arranged in a direction in which said
medium is carried; and

5 said light-emitting section and said light-receiving section of
said second sensor are arranged in a direction in which said head is moved.

6. A printing apparatus according to claim 1,
wherein said first sensor is a sensor for detecting an edge of said
10 medium.

7. A printing apparatus according to claim 1,
wherein said second sensor is a sensor for detecting a pattern
formed on said medium by said head.

15 8. A printing apparatus according to claim 2,
wherein said first sensor includes a light-emitting section and
a light-receiving section;
said light-emitting section of said first sensor irradiates light
20 onto said medium; and
said light-receiving section of said first sensor receives regular
reflection light from said medium.

25 9. A printing apparatus according to claim 2,
wherein said second sensor includes a light-emitting section and
a light-receiving section;
said light-emitting section of said second sensor irradiates light
onto said medium; and
said light-receiving section of said second sensor receives
30 diffuse reflection light from said medium.

10. A printing apparatus according to claim 6 or 2,
wherein said carry unit is controlled in accordance with the
detection result of said first sensor.

11. A printing apparatus according to claim 6 or 2,
wherein said head is controlled in accordance with the detection
result of said first sensor.

5 12. A printing apparatus according to claim 6 or 2,
wherein said first sensor detects a lateral edge of said medium;
and
a region onto which ink is to be ejected from said head is determined
in accordance with the result of detecting said lateral edge.

10 13. A printing apparatus according to claim 6 or 2,
wherein said first sensor detects an upper edge of said medium;
and
said carry unit carries said medium to a print start position in
15 accordance with the result of detecting said upper edge.

14. A printing apparatus according to claim 6 or 2,
wherein said first sensor detects a lower edge of said medium; and
a region onto which ink is to be ejected from said head is determined
20 in accordance with the result of detecting said lower edge.

15. A printing apparatus according to claim 7 or 2,
wherein an ejection test of said head is performed in accordance
with the result of detecting said pattern with said second sensor.

25 16. A printing apparatus according to claim 15,
wherein a process of cleaning said head is performed in accordance
with the detection result of said second sensor.

30 17. A printing apparatus according to claim 1 or 2,
wherein said head can eject said ink while moving in a forward pass
and in a return pass; and
locations at which ink is to be ejected from said head are determined
in accordance with the detection result of said second sensor.

18. A printing apparatus according to claim 1 or 2,
wherein the type of said medium is detected from the detection
result of said first sensor and the detection result of said second sensor.

5 19. A printing apparatus according to claim 18,
wherein said head performs the recording on said medium in
accordance with the type of said medium.

20. A printing apparatus, comprising:

10 a movable head that performs recording on a medium using ink;
a first sensor that can move together with said head and that detects
regular reflection light from said medium; and
a second sensor that is provided separately from said first sensor,
that can move together with said recording head and that detects diffuse
15 reflection light from said medium:

wherein said first sensor is provided further upstream with regard
to a carrying direction in which said medium is carried than said second
sensor;

20 said first sensor includes a light-emitting section and a
light-receiving section;

said second sensor includes a light-emitting section and a
light-receiving section;

25 a direction in which said light-emitting section and said
light-receiving section of said first sensor are arranged is different
from a direction in which said light-emitting section and said
light-receiving section of said second sensor are arranged;

said light-emitting section and said light-receiving section of
said first sensor are arranged in the direction in which said medium is
carried;

30 said light-emitting section and said light-receiving section of
said second sensor are arranged in a direction in which said head is moved;

said first sensor is a sensor for detecting an edge of said medium;

said carry unit is controlled in accordance with the detection
result of said first sensor;

35 said head is controlled in accordance with the detection result

of said first sensor;

 said first sensor detects a lateral edge of said medium, and a region onto which ink is to be ejected from said head is determined in accordance with the result of detecting said lateral edge;

5 said first sensor detects an upper edge of said medium, and said carry unit carries said medium to a print start position in accordance with the result of detecting said upper edge;

10 said first sensor detects a lower edge of said medium, and a region onto which ink is to be ejected from said head is determined in accordance with the result of detecting said lower edge;

 said second sensor detects a pattern formed on said medium by said head;

 an ejection test of said head is performed in accordance with the result of detecting said pattern with said second sensor;

15 a process of cleaning said head is performed in accordance with the detection result of said second sensor;

 said head can eject said ink while moving in a forward pass and in a return pass;

20 locations at which ink is to be ejected from said head are determined in accordance with the detection result of said second sensor;

 the type of said medium is detected from the detection result of said first sensor and the detection result of said second sensor; and

 said head performs the recording on said medium in accordance with the type of said medium.

25

21. A printing apparatus, comprising:

 a carry unit that carries a medium in a carrying direction;

 a movable head that performs recording on a medium using ink;

30 a first sensor that can move together with said head and that detects an edge of said medium; and

 a second sensor that can move together with said head and that detects a pattern formed on said medium by said head;

 wherein said first sensor is provided further upstream with regard to said carrying direction than said second sensor;

35 said carry unit is controlled in accordance with the detection

result of said first sensor;

 said head is controlled in accordance with the detection result of said first sensor;

5 said first sensor detects a lateral edge of said medium, and a region onto which ink is to be ejected from said head is determined in accordance with the result of detecting said lateral edge;

 said first sensor detects an upper edge of said medium, and said carry unit carries said medium to a print start position in accordance with the result of detecting said upper edge;

10 said first sensor detects a lower edge of said medium, and a region onto which ink is to be ejected from said head is determined in accordance with the result of detecting said lower edge;

 an ejection test of said head is performed in accordance with the result of detecting said pattern with said second sensor;

15 a process of cleaning said head is performed in accordance with the detection result of said second sensor;

 said head can eject said ink while moving in a forward pass and in a return pass;

20 locations at which ink is to be ejected from said head are determined in accordance with the detection result of said second sensor;

 the type of said medium is detected from the detection result of said first sensor and the detection result of said second sensor;

 said head performs the recording on said medium in accordance with the type of said medium;

25 said first sensor includes a light-emitting section and a light-receiving section;

 said light-emitting section of said first sensor irradiates light onto said medium;

30 said light-receiving section of said first sensor receives regular reflection light from said medium;

 said second sensor includes a light-emitting section and a light-receiving section;

 said light-emitting section of said second sensor irradiates light onto said medium; and

35 said light-receiving section of said second sensor receives

diffuse reflection light from said medium.

22. A printing system comprising:

a computer; and

5 a printing apparatus, said printing apparatus including:

a movable head that performs recording on a medium using
ink;

a first sensor that can move together with said head and
that detects regular reflection light from said medium; and

10 a second sensor that is provided separately from said first
sensor, that can move together with said recording head and that
detects diffuse reflection light from said medium.

23. A printing system comprising:

15 a computer; and

a printing apparatus, said printing apparatus including:

a carry unit that carries a medium in a carrying direction;

a movable head that performs recording on a medium using
ink;

20 a first sensor that can move together with said head and
that detects an edge of said medium; and

a second sensor that can move together with said head and
that detects a pattern formed on said medium by said head;

25 wherein said first sensor is provided further upstream with
regard to said carrying direction than said second sensor.